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USMC Distributed Operations

I am here to address what the sea base makes possible: Marines deploying to become the pointy-end of netted ground forces.

As we speak today, Marines and Soldiers are fighting against the enemies of the 21st century—enemies who are adaptive, decentralized and able to hide in plain sight. Every day, our warriors grapple with deadly dilemmas:

- A Marine sees a cluster of tents. Is it an insurgents' camp or a wedding party?
- A Soldier sees a firefight in a souk. How can he sort friendlies from unfriendlies?
- A Marine strides through a crowded market. Can he be combat-capable without looking like a Star Wars Imperial Storm Trooper to friendly locals?

These questions get to the heart of how network centric warfare (NCW) might sharpen our response.

To enable ground units to make the right decisions, we have to give them the tools to get what they need through the network, intelligence, additional Joint firepower, sustainment and support, and get it fast. Above all, we need networked capabilities to decentralize our decision-making, so small units can locate, close with, and destroy asymmetric threats.

You should know that our Distributed Operations concept, not yet an accepted doctrine, breaks with some views of NCW. It is not about a supreme commander receiving inputs from battlespace sensors and fighting remotely. It sees the warriors on the ground, the small infantry units, as the prime discriminators, deciders and actors.

What, then, is the value of the network? NCW provides the lifeline to Joint capabilities, allowing these ground units to operate autonomously, to get up close and personal, because they are always connected to the Joint capabilities they need to accomplish their missions.

DARPA's Distributed Operations Architecture Study is our way of opening this area to broad thinking on new technological approaches.

That is where you come in. We need ways to link with Joint air, sea and command platforms without being weighed down by equipment and batteries. By using the network, small units can avoid the need to carry all the steel with them. What technologies can enable us to do this? I see five basic arenas in which we need your help.

First Arena: Maneuver/Fires

As Chesty Puller, the most decorated Marine in history, said, "You can't hurt 'em if you can't hit 'em." Maneuverability is more than mobility. It is the need to position forces to bring appropriate fire to the enemy.

Maritime supremacy is a key enabler. The Marines want ground combat units locating, closing with and destroying enemies, not protecting a large support structure ashore. For that reason, we need to project power from sea bases.

This means the Utah Beach paradigm of an expeditionary force, effective in its day, is now obsolete.

Today's distributed units must be able to project from a sea base straight to operational objectives. Once ashore, Marines must be able to maneuver without being channelized by roads and other

trafficable terrain that make movement predictable.
We need you to think about:

- Transports that are not restricted to current definitions of trafficable terrain. Our enemies know which roads we are traveling, and can position improvised explosive devices (IEDs) and ambushes along those roads. Years ago, we developed amphibious vehicles to span the sea-land interface. What we need is omniphibious vehicles that can go anywhere, avoiding IEDs and ambushes, and allowing our infantry to approach targets from directions opportune to us, not the enemy.
- Ways to enable observers to quickly create and transmit calls for fire into the network, and coordinate fire support with any and all Joint fires assets.
- Weapons to answer those calls in ways appropriate to asymmetric targets—able, for example, to maneuver into urban areas and take out the room an enemy sniper is in, not the whole building or block, and do it immediately, not a couple of hours from now.

Integrated day/night optics for infantry weapons, so Marines can detect and engage targets at night at the same ranges they can during daylight.

Second Arena: C4ISR

The integration of intelligence and communications is a broad area, one that will require a global solution across the Armed Forces, the keystone of NCW.

Under NCW, Marines need to communicate, collaborate and share a common picture, composed of voice and data as well as imagery, at all echelons.

Such a common operational picture can identify friendly forces and paint targets. A user-friendly format is absolutely necessary for infantry. There

is no time for long division on the battlefield. A Joint C2 system must operate in much the same manner as today's Internet and WIFI, but without the vast civilian infrastructure.

I ask you to think about:

- Ways to provide reliable, secure communications across all echelons, sized so that foot-mobile infantry can carry communications equipment and power sources within their standard load, yet link to any Joint element.
- When it comes to intelligence, we run the risk of asking commanders to drink from a digital fire hose. We need you to help us filter information and get actionable intelligence into the right hands, quickly.

Third Arena: Force Protection

In a contested area, we need to protect distributed ground forces. I'm sure you've all heard about current efforts to up-armor ground vehicles like HMMWVs. I was in Iraq and saw the bad guys learning and adapting their IEDs and tactics to be more effective against our armored vehicles. We need to rethink force protection as we extend forces with Distributed Operations. Please think about ways to:

- Detect and neutralize IEDs and mines before we run into them.

- Enable Marines to probe potential danger areas without exposing humans to enemy fire or explosives.

Fourth Arena: Logistics

Distributed Operations changes the way ground units will operate, and we need to change the way our logistics systems support them. Please think about ways to:

- Reduce the frequency and volume of sustainment small units need, reducing the consumption of supplies, such as batteries, or providing them the ability to regenerate supplies, such as water and power.
- Distribute logistics to small units when they do need resupply, without tying up mobility assets needed for other support functions.

Fifth Arena: Training

Distributed Operations will require better trained personnel. Training systems must be scalable from individual to Marine Air Ground Task Force level, accessible from ship or garrison, and matched to combat conditions not the controlled environment of a rifle range. And enable us to conduct extensive training affordably.

We need you to think about:

- Technologies to train Marines realistically in combat skills, from individual marksmanship through small unit leader decision making.
- In particular, faster and easier ways to train Joint forward observers, ground spotters capable of controlling all types of Joint fires, and technologies to make their tasks easier to perform. We're looking for a fire support control analogy to an electronic calculator rather than the long division currently needed to perform these tasks.

To provide our ground forces overwhelming capability against future enemies, our Marine infantry and supporting units need technology and training equivalent to programs like the Navy's Top Gun or Air Force's Red Flag, although being Marines, we'd call it *Top Grunt*.

Call for Action

Looking at the challenges ahead, we should keep in mind a little history. After the Allies suffered over 200,000 casualties at Gallipoli in World War I, many military experts declared then-modern machine guns and long-range artillery had made amphibious invasions obsolete.

But a group of Marines, Sailors, scientists and engineers didn't buy that proclamation. They examined the physics of the amphibious operational battlefield, and developed tactics and technologies to overcome its obstacles. The fruits of their study are now the storied names embroidered on the ribbons of America's battle flags—Guadalcanal, Iwo Jima, Normandy.

We face a similar situation today. Many tell us we cannot defeat irregular forces. Well, we just don't accept that. Marines want to partner with technology innovators like you to solve this problem.

The Distributed Operations Architecture Study is really about enabling the ground elements to conduct successful NCW against an adaptive, asymmetric enemy. We think we can win by being the most adaptive player. That's the true power of network-centric warfare. That is why we need you.